

PROCEEDINGS OF THE ROYAL ENTOMOLOGICAL SOCIETY OF LONDON

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ORDINARY MEETING.

WEDNESDAY, 4TH NOVEMBER, 1953, at 5.30 p.m.

AGENDA

1. Confirmation of the Proceedings of the Ordinary Meeting held on 7th October, 1953.
2. Recommendations of candidates for Fellowship.
3. Announcement of election of new Fellows.
4. Additions to the Library. [See p. 46.]
5. Admission of Fellows.
6. Papers accepted for publication in the *Transactions*.
7. Exhibits.

As the December meeting will be devoted to exhibits and brief communications, Fellows are requested to reserve any exhibits that are not urgent until that meeting (2nd December).

8. Communications.

INTERSPECIFIC HYBRIDIZATION.

1. Mr. P. F. Mattingly.

Species Hybridization in Culicine Mosquitoes.

[ABSTRACT]

Experiments by Toumanoff and Hoang-Tich-Try in Indo-China, using two very distinct species of *Stegomyia*, showed that these could be crossed in either direction. The hybrid offspring of these crosses invariably resembled the maternal species exactly except that one ♀ of the F₄ generation from the *albopictus* ♀ × *aegypti* ♂ cross appeared to be a typical *Aë. aegypti*. The degree of compatibility between the two species appeared to vary geographically and the cross proved possible in one direction only, using strains of unknown origin, in the U.S.A. and impossible in either direction when performed in the Philippine Is. and in Holland. Toumanoff also found Indian *aegypti* to be incompatible with

Indo-Chinese *albopictus*. Bonnet, in Hawaii, backcrossed ♀ F₁ hybrids to the paternal strain and obtained a single viable ♂ offspring, from 175 eggs, which resembled in all respects the paternal species. Unidirectional fertility has been observed in other species of *Stegomyia*, but the offspring here show intergradation of the parental characters. This phenomenon has also been demonstrated, together with maternal inheritance, in different strains of *Culex molestus* and a detailed genetical study suggests that it may represent one of the few known cases of cytoplasmic inheritance in animals.

2. Dr. C. A. Clarke.

Hybridization between *Papilio* species of the *machaon* group.

[ABSTRACT]

A summary will be given of the results of a year's experimental hybridizing between the principal butterflies forming the *machaon* complex of North America (*Papilio machaon*, *P. polyxenes asterius*, *P. brevicauda* and *P. zelicaon*). The original and reciprocal crosses have produced similar offspring and in general both types of cross have been obtained with equal ease. The F₁ hybrids have invariably been sterile *inter se* but fertile back crosses have been obtained and this has enabled the genetics of some of the characters to be worked out. The method of inheritance appears to be of the usual Mendelian type.

Dr. P. M. Sheppard (a Visitor) will discuss the systematics involved in the contributions by Mr. Mattingly and Dr. Clarke.

TEA will be served in the Library before the meeting.

Serial Publications in the Library of the Royal Entomological Society of London.

A list of the serial publications in the Society's Library, with the titles abbreviated in accordance with the *World List of Scientific Periodicals*, has now been prepared. Copies may be obtained in the Society's office, price (to Fellows) 3s. 9d.

PROCEEDINGS OF THE ORDINARY MEETING HELD ON 7TH OCTOBER, 1953.

Professor P. A. Buxton, C.M.G., F.R.S., President, in the Chair.

Present 100 Fellows and 22 Visitors.

The minutes of the Ordinary Meeting held on 1st July were confirmed and signed by the President.

The President extended a welcome to visitors present at the meeting, including Dr. G. B. Fairchild of the Gorgas Memorial Laboratory, Ancon, Panama Canal Zone, and Dr. Timmerman of Hamburg.

The names of the following candidates for election were read for the first time: Mr. T. N. Ananthakrishnan, B.Sc.; Mr. Cedric Alex Collingwood, B.Sc.; Mr. Ahmad Said Khan Ghouri, B.Sc.; Mr. Henry Owen Douglas Griffith; Squadron-Leader Arthur Ganderton Harrison; Mr. George R. Hawthorne; Mr. Edmund Neville Hey; Mr. N. Gopala Kurup, M.A., B.Sc.; Major Stanley McCullagh; Mr. John C. Martin, B.A., Ph.D.; Mr. Akhauri Ramakant Prasad, B.Sc., B.Sc.Ag.; Mr. Vedula Venkat Rao; Mr. James H. Savage; Mr. Clive Julian Shiff; Mr. Athar Ali Siddiqi; Mr. Courtenay Neville Smithers, B.Sc.; Mr. Kenneth Ivan Squires; Mr. Arthur Clement Justin Weerekoon, B.Sc., Ph.D.

For the second time (taken as read): Dr. Norman Fraser; Surgeon Commander C. G. Hunter, D.S.C., R.N.; Mr. Abdul Mannan Khan, B.Sc.; Mr. Raymond Mamet; and Mr. Leonard Ross.

The Secretary read the names of the following newly elected Fellows of the Society: Dr. R. L. Gupta, B.Ag., Ph.D., Entomologist to the Government of Padhya Pradesh, India; Mr. J. M. B. Harley, B.Sc., c/o D. A. Davies, Esq., 20, Leighton Avenue, Pinner, Middlesex; Mr. Bernard Heineman, 247, Church Street, New York City, 13, N.Y., U.S.A.; Mr. Michael James Way, M.A., Rothamsted Experimental Station, Harpenden, Herts.

Thanks were voted to donors of gifts to the Library since the last meeting.

Dr. S. Asahina, Mr. Q. A. Geering and Mr. A. F. Peacey signed the Obligation Book and were admitted Fellows of the Society.

The following paper, accepted for publication in the *Transactions*, was read in title: "The effects of population density on the biology of the larvae of Lepidoptera," by D. B. Long.

The President called the attention of the meeting to the activities of the Ministry of Agriculture's Working Party on Precautionary Measures against Toxic Chemicals used in Agriculture, which functioned under the Chairmanship of Professor Zuckerman. This Committee had now been asked by the Ministry to extend the range of its investigations to possible risks to wild life, the terms of reference of the Working Party for this purpose being:

"To investigate the possible risks to the natural flora and fauna of the countryside from the use in agriculture of toxic substances, including the possible harmful effects for agriculture and fisheries, and to make recommendations."

Fellows of the Society having views or evidence relevant to the enquiry were asked to send them to the Secretary for consideration by Council at its next meeting, when the action to be taken by the Society would be decided.

The President announced that the Society had recently established its eligibility to reclaim the income tax paid by Fellows on the amount of their annual subscriptions when such subscriptions were paid under a seven year

covenant. Fellows doing so therefore benefited the Society substantially at no cost to themselves, and it was hoped that as many as possible would take advantage of the scheme, full details of which were obtainable in the office.

Mr. A. N. Clements exhibited microscope slides showing an organ of unknown function in the head of mosquitoes. He said that a paired organ in the head of pupal and adult mosquitoes, previously described as the ocelli (Thompson, 1905), was shown by its structure not to be the ocelli. What was originally described as a nerve running to the brain was, in fact, a muscle running on to the aorta. The muscle is attached distally to a sac formed of a network of fine fibrils. A trachea runs from the sac to the tracheal trunk of the antenna. A group of columnar cells lies between the sac and the cuticle. The function of the organ remains obscure. An homologous structure has been found in *Culicoides* (Ceratopogonidae).

Mr. A. E. Gardner exhibited male and female imagines of the rare dragonfly *Aeshna isosceles* (Müller) (Odonata: Aeshnidae), taken at Potter Heigham, Norfolk, on 27th June, 1952, and also a mature male larva of this species dredged up in weed from a dyke at Potter Heigham on 30th May, 1953. This was the first British larva to be found. It was 20 mm. in length, dark brown in colour, with the first three abdominal segments yellowish. Moults took place on 3rd June, 3rd July, 5th August, and the insect reached maturity on 26th September.

From a few eggs laid on 30th June, 1952, larvae emerged on 5th August, 1953, and it is thought that this species is the only British *Aeshna* which has no diapause in the egg stage (*Aeshna caerulea* (Ström.) being the only species of which eggs have not been obtained).

The supracoxal armature of the prothorax of the mature larva most closely resembles that of *Aeshna cyanea* (Müller), but separation from this species is easy on examination of the anal appendages, the appendix dorsalis of *isosceles* being longer than that of *cyanea* and the cercoids relatively of much greater length, more slender and more strongly incurved. Illustrations of these characters were shown.

Dr. M. T. Gillies exhibited adults and nymphs of an African *Prosopistoma* (Ephemeroptera). He said that this peculiar mayfly had long been a puzzle to entomologists. The nymph has been known for almost two centuries, but apart from two females obtained by Vayssière in France in 1881, the adult stages have never been seen. The nymph differs strikingly from almost all other mayflies by the great enlargement of the mesonotum to form a carapace that encloses the thorax, gills and anterior abdominal segments. This gives it a limpet-like appearance and it is, in fact, one of the most stream-lined of aquatic insects.

The genus is widespread in the Old World and is quite common in fast flowing rivers on the Continent of Europe. Nymphs have been found to be common in the Sigi River at Amani in Tanganyika (altitude 600–3000 feet), and eventually a number of adults of both sexes were bred out from nymphs and others caught on the wing. Mr. R. S. Crass had recently found nymphs in Natal and had also obtained a single female adult.

The adults show many structural peculiarities and their life history is also unusual. It appears that the final moult is suppressed in the female so that the subimago represents the adult insect. The male has the normal subimaginal and imaginal stages. The period of adult life is probably confined, in this African species, to the first half an hour or so of daylight. This restricted and somewhat inconvenient flight period may, if common to the other species, explain the previous elusiveness of *Prosopistoma*.

Professor G. C. Varley exhibited specimens of *Agrypnètes crassicornis* McLachlan, a Caddis Fly recently added to the British list. He said that this species was first identified by Mr. Kimmins (Kimmins, 1952, *Ann. Mag. nat. Hist.* (12) 5 : 1039-43) from a male caught by Mr. P. F. Holmes at Malham Tarn, Yorks., on 23rd June, 1950. The species was known previously from Finland, the Caucasus and Mongolia.

He had collected a dozen at Malham on 7th July, 1953, some on the wall of the boat house, but most under stones by the shore of the tarn. They are at once recognisable from other Phryganeids by their very pale colour, which led Mr. Kimmins to suppose that the specimen he saw was newly emerged from the pupa.

The Honorary Secretary, on behalf of **Dr. E. McC. Callan** and **Sir Guy Marshall**, exhibited specimens of the weevil *Myrmecolixus braunsi* Wasmann, taken in the nest of the ant *Crematogaster castanea* Smith at Kasouga, near Grahamstown, South Africa. The weevil was one of the six known myrmecophilous species.

Mr. Q. A. Geering exhibited a small collection of sorghum heads damaged by the Sorghum Midge, *Contarinia sorghicola* Coq. He said the midge had recently been reported for the first time from a number of territories in East and West Africa.

The exhibit showed the range of damage from slight to severe. White empty pupal cases could be seen protruding from between the glumes of the spikelets which had aborted as a result of the larvae feeding (externally) on the young grains.

Miss M. Maryon exhibited larvae and pupae of *Theobaldia* (*Allotheobaldia*) *longiareolata*, found breeding in large numbers in a fresh water tank in the grounds of Horton Hospital, Epsom. The tank had been kept under continuous observation by Mr. P. G. Shute for the last 20 years and only *Culex pipiens* and *Theobaldia annulata* had previously been found. Larvae and pupae were collected and bred out at a temperature of 75° F. and the female adults became fertilized in a small cage 12 in. × 12 in. and were kept alive on a solution of glucose. Many females lived for about three weeks but refused to take a mammalian blood meal and none of them laid autogenous eggs.

Mr. E. S. Brown gave a paper on insects of economic importance in the Seychelles, with special reference to the control of *Melittomma insulare* Fairmaire, a beetle attacking coconuts, an abstract of which appeared on pages 35-36.

A short discussion followed in which Mr. C. N. Hawkins enquired whether the fumigant used on infected trees killed the micro-organisms causing decay as well as the beetle larvae. Mr. Brown replied that, while insecticides had no direct effect on these micro-organisms, the latter did not progress without the larvae so that the tree could be saved by killing the larvae.

Mr. J. C. M. Gardner asked whether the palm was generally more healthy on high ground, to which Mr. Brown replied that, with the exception of coral sand plateaux, there was no association of ecological conditions which favoured the palm and not *Melittomma*.

Dr. F. van Emden having asked whether the micro-organisms were carried by the eggs of *Melittomma*, Mr. Brown said that very few experiments had been made and the evidence available was too slight to enable him to enlarge on this point.

E. B. BRITTON, *Honorary Secretary.*

The next meeting will be held on 2nd December, 1953, at 5.30 p.m.

ADDITIONS TO THE LIBRARY.

Presented.

- Coleman, W. S. *British butterflies*. New edn. 8vo. London. 1905. [Commonwealth Institute of Entomology.]
- Gaul, Albro. *The wonderful world of insects*. 8vo. London. 1953. [The Publishers.]
- Imperial College. *Calendar*, 1953-54. 8vo. London. 1953. [Imperial College.]
- Linssen, E. F., & Newman, L. Hugh. *The observer's book of common British insects and spiders*. Sm. 8vo. London. 1953. [The Publishers.]
- Newman, L. Hugh. *Transformations of butterflies and moths*. 8vo. London. 1952. [The Publishers.]
- Rehn, James A. G. *The grasshoppers and locusts (Acridoidea) of Australia. Vol. II. Family Acrididae (Subfamily Pyrgomorphinae)*. 4to. Melbourne. 1953. [Commonwealth Scientific and Industrial Research Organization, Australia.]
- Ribbands, C. R. *The behaviour and social life of honeybees*. 8vo. London. 1953. [The Author.]
- Richards, O. W. *The social insects*. 8vo. London. 1953. [The Publishers.]

Purchased.

- Bergmann, Arno. *Die Grossschmetterlinge Mitteleuropas. Band 3. Spinner und Schwärmer. Verbreitung, Formen und Lebensgemeinschaften*. Large 8vo. Jena. 1953.
- Bonne-Wepster, J., and Swellengrebel, N. H. *The anopheline mosquitoes of the Indo-Australian region*. 8vo. Amsterdam. 1953.
- Essig, E. O., and Abernathy, Frieda. *The aphid genus Periphyllus*. 8vo. Berkeley and Los Angeles. 1952.
- Ferris, G. F. *Atlas of the scale insects of North America. Vol. VI. The Pseudococcidae (Part II)*. 4to. Stanford, Calif., U.S.A. 1953.
- Grenier, P. *Simuliidae de France et de l'Afrique du Nord*. 8vo. Paris. 1953. [Encyclopedie Entomologique (A) 29.]
- Patterson, J. T., and Stone, W. S. *Evolution in the genus Drosophila*. 8vo. New York. 1952.

In addition, separates have been presented by Professor P. A. Buxton, C.M.G., F.R.S.; Hope Department of Entomology, Oxford; Mr. C. G. Clutterbuck; Mr. J. W. T. Armstrong; United States Department of Agriculture; Mr. N. C. E. Miller; Entomology Department, Rothamsted Experimental Station; Dr. J. L. Cloudsley-Thompson; Mr. R. A. French; Mr. J. D. Bletchly; Mr. D. K. McE. Kevan; Chief Entomologist, E. African Tsetse and Trypanosomiasis Reclamation and Research Organization; Dr. J. D. Carthy; Dr. C. A. Clarke; Mr. J. S. Hough; Commonwealth Institute of Entomology; Mr. D. Leston; Mr. P. T. Haskell; Mr. A. E. Gardner; Mr. M. Niblett; Mr. B. Jobling; and Mr. D. J. Lewis.